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UTILIZATION OF ERTS-1 DATA IN THE HOUSTON AREA

ERTS-1 INVESTIGATION ER-600

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Prepared for

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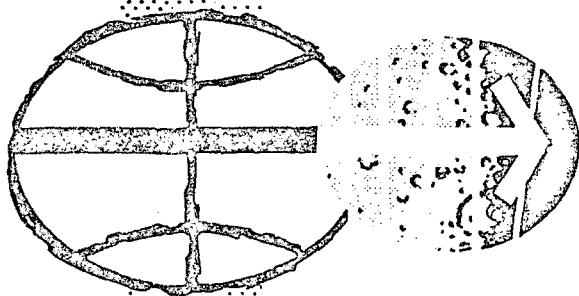
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

September 21, 1972

UTILIZATION OF ERTS-1 DATA IN THE HOUSTON AREA ERTS-1 INVESTIGATION ER-600

1.0 OBJECTIVES

The general objective of this investigation is to determine the individual and combined roles of ERTS spacecraft, aircraft, and ground capabilities for their contributions to the data gathering mission, to assist in the definition and development of the technology needed for these systems to serve an integrated Earth Resources Survey Program.

The specific objectives are as follows:

- o Use the ERTS-1 imagery to determine the number of land use categories which can be confidently determined from this data using conventional photo-interpretation techniques.
- o Use digital data from the ERTS-1 systems to determine the degree to which automatic data processing (spectral pattern recognition) techniques can be applied to the land use classification process.
- o Relate the findings derived within objectives (1) and (2) to that land use present at the time of the spacecraft overflights as determined from aircraft and ground data.
- o Assess the utility of the ERTS-1 data to detect, identify, locate and measure features of applications interest in several target areas including forests, range, grass and brushlands, water and coastal regions, urban areas and croplands.
- o Conduct a data utilization experiment in cooperation with the Agricultural Stabilization and Conservation Service of the U.S. Department of Agriculture to evaluate the utility of ERTS-1 and aircraft data to identify crop species, categories of land use, field boundaries and to estimate crop and land use acreages.

2.0 WORK PERFORMED DURING REPORTING PERIOD

During the reporting period, July and August 1972, activity was focused on planning and organizing the investigation. The main accomplishments during this period were:

- o A four-man group was organized to plan and coordinate the investigation activity.
- o Tasks were defined describing the investigation.
- o Six Analysis Teams were organized and staffed to address specific aspects of the investigation as follows:

- (1) Forest targets
- (2) Range, grass and brush targets
- (3) Water and coastal targets
- (4) Urban targets
- (5) Crop targets
- (6) Signature extension techniques

- o The Analysis Teams started the preparation of detailed analysis plans.

- o A checkout and shakedown of our systems for computer-aided analysis (spectral pattern recognition) was started using data from one ERTS-1 scene (Monterey Bay).

- o Underflight support requirements were defined and one mission by the NASA RB57F was carried out on August 30, 1972, over several of the test areas.

- o Ground data for making atmospheric corrections was acquired at several locations within the test site on July 25, August 10, 11, 12, 28, 29 and 30, 1972.

- o Data Collection Platforms (DCPs) have been received and checked out by transmitting dummy signals via the spacecraft.

3.0 ADHERENCE TO WORK SCHEDULE

A detailed schedule has not yet been established. This will be presented in the Data Processing Plan to be submitted pursuant to the Task Definition and Statement of Work for this investigation.

4.0 ANALYSIS OF WORK PROGRESS

Work progress during this reporting period has been generally satisfactory. The organization and structure of the activity is considered sound. Personnel training, system checkout and detailed planning will be accomplished in a time frame consistent with data availability.

5.0 FUNDING

ERTS funding (Code 641) in the amount of \$200,000 has been received at MSC pursuant to the execution of the Investigation Task Description.

This amount is considered adequate for the proposed expenditures. No funds from this source have been expended during the current reporting period.

Projected costs for the balance of the period of performance are:

| | |
|--------------------|-----|
| First Quarter FY73 | 10K |
| Second " " | 120 |
| Third " " | 50 |
| Fourth " " | 20 |

6.0 STAFFING

The full-time professional staff supporting this investigation averaged 28 over the reporting period.

7.0 FUTURE WORK PLANNED

During the next reporting period detailed analysis plans will be completed and analysis work will commence on the part of all Teams. An interim report will be produced on the results of the system checkout with data acquired over Monterey Bay.

